-NATIONAL LANDSCAPE CONSERVATION SYSTEM-

FY 2009 MANAGERS ANNUAL REPORT

Grand Canyon-Parashant National Monument

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BLM Arizona Strip District Office – Arizona State Office
NPS Lake Mead Recreational Area – Pacific West Regional Office

Designated by Presidential Proclamation #7265 on January 11, 2000

Total Acres: 1,017,191 (808,744 BLM administered and 208,447 NPS administered)

Estimated Annual Visitation: 51,440

1. Natural and Heritage Resources Conditions

a. Overview

Natural Resources Trends:

A notable issue on the Monument is the loss of native plant diversity in the Mojave Desert caused by a significant change in the fire regime. The vegetation communities stressed by drought responded to the increased precipitation of 2004-5. This change also increased annual exotics which in turn brought more fires to the Mojave portion of the Monument. From 2005 to 2007, a total of 183,343 acres burned in that area. The biological diversity and critical habitat for the threatened desert tortoise in the Mojave Desert continue to be threatened, and curbing the conversion to annual exotics continues to be a challenge.

Heritage Resources Trends:

Arizona State Parks Site Stewards monitored 48 sites. The condition trend seems fairly flat with only a minor decrease in the condition due to wildfire, fire rehabilitation, forest restoration, fuels management, vandalism, and natural impacts such as erosion and weathering.

Prehistoric - Contractors, volunteers, and NPS and BLM archaeologists conducted the following archaeological work:

- 2,040 acres were inventoried at a Class II or III level yielding 46 new sites, all of which are potentially eligible for the National Register.
- Don Christensen and other volunteers completed detailed recording of 22 new rock art sites.
- A Pottery Field Guide was completed to standardize collection of ceramic information among volunteers, contractors, and federal archaeologists.
- Monument staff worked closely with Tribal officials and Law Enforcement trying to resolve a Native American Graves Protection and Repatriation Act violation.

Historic - With BLM Challenge Cost Share (CCS) dollars and funding from the NPS, work continued on stabilizing the headquarters building at the Grand Gulch Mine including installation of a visitor safety barrier. Stabilization work was also conducted at Tassi Ranch, including repairing the barn roof and expanding the French Drain system.

The Historic Resource Study entered its second and final year with funding from the NPS and the National Leadership Conservation System (NLCS) Science program.

b. Land Health Assessments.

Seventy-one percent of the BLM "permitted" grazing allotment assessments have been completed using the fundamentals of rangeland health. The other 29% are still in draft. Two allotments on NPS lands will be assessed using the NPS Vital Signs standards.

According to the assessments, 38% of the allotments are meeting standards for rangeland health and 54% are progressing toward meeting standards. A determination will be made during FY 2010 to assess whether standards are being met on the remaining 8%,

c. Inventory.

DATA MINING

Jennifer Fox, the Monument's data miner began work on January 5, 2009 and is currently funded through FY 10. Her data mining efforts have so far resulted in 207 new references and 255 updated references in the NatureBib database, and 1,881 new species in the NPSpecies database. With these additions, as of September 30, 2009, the

total number of references in NatureBib for the Monument was 2,337. With the new species, the total number in NPSpecies for the Monument was 4,037.

Table 1. Number of NatureBib entries prior to and following data mining activities at Parashant National Monument

NatureBib	Number
Prior to data mining and cataloging efforts, FY 08	2,141
Created BibkeyID	207
Edited BibkeyID	255
TOTAL	2,337

Table 2. Species found on the Parashant National Monument Species list in NPSpecies entries prior to and following data mining.

NPSpecies	Number
Prior to data mining and cataloging efforts, FY 08	2,445
Species added to Monument list	1,881
Species not found in ITIS, linked to the Monument	227
TOTAL	4,037

VASCULAR PLANT INVENTORY

Botanical surveys of the Monument continue from fire re-vegetation sampling as well as other field collections and observations.

LICHEN INVENTORIES

Yearly lichen inventories occurred from 2003-2008 by Dr. Thomas Nash and his students from Arizona State University. These were the very first collections made for the Arizona Strip (except for a few from the N. rim of the Grand Canyon).

There have been 283 species in 70 lichen genera identified to date. The list, which is growing, is available online at http://symbiota.org/nalichens/collections/index.php. Select - "Arizona State University Lichen Herbarium," State – "Arizona", County – "Mohave," and Locality – "Parashant" to see all 1673 collections, a species checklist, or collection points on Google Maps.

BRYOPHYTE INVENTORY

This was the third year of a three year project with Dr. Lloyd Stark and John Brinda, from the University of Nevada, Las Vegas, to inventory the Monument's mosses and liverworts.

CAVE INVENTORY

Baseline Cave Ecological Inventory on selected caves (a joint effort with USGS) continued during the year. To date the work has resulted in the identification of three

new genera and 15 new species of invertebrates on the Monument. With extensive use of volunteers, 23 additional caves were discovered, mapped, inventoried, and protected.

- Significant archaeological resources found in several caves are being protected with gates and other measures. A temperature study of caves continues.

Jerky Cave (Before)

Jerky Cave (After)

- One especially unique and geologically significant cave was discovered and gated. A survey of the cave was completed, revealing highly unique paleontological resources and a length of at least 3,400 feet. Funding and technical assistance requests for paleontological studies have been submitted.

- NRPP funding for $98,000 and cave inventory projects are slated for FY10.

Water Rights

The Monument filed for two water rights acquisitions (Upper Kent Tank (stock pond) and White Reservoir), and confirmed water rights and legalities to Pakoon Springs.

Forest Inventory

Monument staff inventoried 623 acres in the Upper Lang's Run Watershed near Mt. Trumbull in an effort to monitor the current condition of the vegetation following the long-term and ongoing ponderosa pine forest treatment program of Northern Arizona University/ Ecological Restoration Institute (NAU/ERI) and BLM.

VEGETATION CLASSIFICATION AND MAPPING

In 2007, Grand Canyon National Park partnered with the Monument (w/NPS funding) on the multi-year Vegetation Community Classification and Mapping project to delineate vegetation to Alliance and Association level.

- In 2008 the field data collection portions of the project were completed.

- The 2008 data has been analyzed for the Phase 1 areas "above the rim", mostly consisting of the South and North Rim areas east of the Monument and adjacent to the Kaibab National Forest. These classifications address the ponderosa pine and higher coniferous and subalpine communities, with some work done on the Colorado Plateau pinyon-juniper communities. The first version of the satellite photo interpretation mapping has also been completed for Phase 1. Phase 2, to commence in 2010, will look at the "below the rim" communities, which include lower elevation pinyon-juniper, blackbrush, shrub, and Mohave vegetation. These plant communities comprise the majority of Monument lands.

- Efforts have begun to extend this classification work to BLM lands, especially the ponderosa pine forest and Mohave Desert areas with the most critical resource concerns and restoration needs. The work includes analyzing Arizona Department of Agriculture NAIP photography and historic data collected for other purposes, coordinating with the NPS Mohave Network vegetation mapping efforts, and pursuing BLM funding.

d. Restoration

BLM fire managers conducted the 250 acre Rye Flat, 99 acre East Trumbull, and 164 acre Middle Fork prescribed fires as part of continuing efforts to decrease future wildfire risk, protect cultural and natural resources, and help restore a fire-dependent ecosystem within the Monument. A 309 acre prescribed burn near Mt. Dellenbaugh was also conducted in the Kelly Dam area successfully reducing fuel accumulations in the fire-adapted ponderosa pine forest ecosystem.

A milestone occurred this year on May 29 when lightning ignited a single tree fire on the Monument. The fire was managed for resource benefit under guidance of the new RMPs. Although conditions didn't allow the fire to spread beyond the one tree, the event marked the first ever naturally ignited resource benefit fire on the Monument.

On August 17, a fire located three miles east of Mount Logan was discovered and named the Turkey Track fire. The fire, ignited by lightning, burned approximately 300 acres of state and federal land within the Mt. Trumbull ecosystem restoration project area. The fire was managed to achieve both protection and resource objectives, providing for firefighter and public safety, returning fire to a fire-dependent ecosystem, reducing the risk of severe fire occurrence, preserving cultural resource sites, and improving wildlife habitat. Management actions included stopping undesirable fire spread on the state lands or towards private property, slowing or allowing growth depending on conditions, and redirecting fire spread towards federal lands when necessary.

Fuel wood was offered on an 80 acre unit near Mt. Trumbull this year. The unit will continue to provide fuel wood and be monitored until vegetation objectives are met.

WEED TREATMENTS

As part of the Tassi Springs restoration project, the Lake Mead Exotic Plant Management Team treated the Scotch thistle with herbicides, killing approximately 98% of the plants. The few surviving plants were hand pulled or dug from Tassi Ranch. This resulted in no plants reaching maturity and no new seed set this year.

Approximately 28 NPS staff spent a day hand pulling four species (bull thistle, marrubium, onopordum acanthium, and mullein) in a 15 acre area at Mt. Trumbull as part of the Lake Mead natural resources staff retreat. Curt Deuser from Lake Mead also implemented the following work:

- Conducted tamarisk re-treatment of three acres at Burro Springs.
- Hand-pulled three species at the Mt. Trumbull Lava Field.
- Treated two acres of tamarisk at Mud Wash.
- Treated tamarisk and malta starthistle on eleven acres at Pakoon Springs.
- Re-treated four acres of tamarisk at Pigeon Wash located near Tassi.
- Treated Red Brome at eight wildfire sites throughout the Mojave totaling four acres in partnership with the USGS and Monument staff.

SEED COLLECTION

The Monument began collecting native seed for restoration work and seed banking:

- Six gallons of Joshua tree seeds were collected from a range of elevations, the first time in seven years that a decent seed set has occurred. The seed will be used for restoration of burned areas, the Pakoon Springs Rehabilitation Project, and seed banking to help prevent species loss from future catastrophic fires.

- Spot seed collections of several other species were done for the Pakoon Springs Rehabilitation Project.

PAKOON SPRINGS REHABILITATION

In 2006, the BLM successfully competed for a grant from the Arizona Water Protection Fund to determine the feasibility and logistics of implementing the rehabilitation of the complex of springs at Pakoon Springs Ranch. The BLM entered into a Cooperative Agreement with the Grand Canyon Wildlands Council to develop the rehabilitation plan, determine the methods, and implement a pilot study to initiate the Pakoon Springs restoration.

The purposes of this project are to: 1) rehabilitate and enhance the native biodiversity, ecological function, and pre-development riparian habitat characteristics of Pakoon Springs; and 2) provide an outdoor venue for natural and cultural resource education, spring restoration interpretation, and recreation on the Monument. Following are the project accomplishments to date.

Task	Deliverable	Status
Permits	Land Title Deed Proof of Water Rights Hazmat Clearance Cultural Survey and Report BLM – GCWC Cooperative Agreement SHPO a clearance based on the Cultural Surveys and Reports completed and submitted by the BLM, as described under the Grant Contract. Environmental Analysis (EA) to implement the project. (Included ESA Documentation - covered under the 1998 Programmatic Biological Opinion with the FWS (#2-21-96-132). Core of Engineers Permit = Concurrence of "No Jurisdiction"	Complete
Feasibility Study Plans	Feasibility Plan	Completed
Land Survey Maps	Maps and Land Survey Map Report	Completed
Hydrologic and Soil Surveys & Hydrologic	1) Hydrologic Monitoring Reports	Various due dates

Task	Deliverable	Status
Monitoring	2) GIS map	70% Complete
Vegetation Survey and Map	Vegetation Survey Report and GIS map	Complete
Rehabilitation Plan	Rehabilitation Plan	Complete
Pilot Implementation	Re-contour all ponds and develop new outflow channels.	Completed
Transplant Riparian Vegetation	Transplanted local riparian species into newly wetted areas.	Completed
Initiate Adult Bullfrog Eradication	Local extirpation of non-native species.	April 2010
Eradicate Mosquito Fish and Bullfrog Tadpoles	Local extirpation of non-native species.	June 2010
Eradicate non-native, invasive plant species	Local extirpation of non-native species.	Summer 2010
Re-contour Ag Fields	Natural appearing landscape.	March 2010
Vegetate old Ag Fields	Natural appearing landscape.	Spring and Summer 2010
Vegetation Monitoring	Vegetation monitoring reports	Various October 31, 2008 - Complete
Final Report	Final Report	Due December 30, 2010

FIRE REHABILITATION

Emergency Stabilization is defined as, “Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency Stabilization actions must be taken within one year following containment of a wildland fire.”

Rehabilitation is defined as “Efforts undertaken within three years of containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire.”

- Repairs have been completed and include repairing or replacing facilities damaged by fire (fences, corrals, cattle guards, water catchments, signs).

- Monitoring of treatments is on-going by USGS.

MT. TRUMBULL ECOSYSTEM RESTORATION PROJECT

Phase 1 of the research efforts on the Mt. Trumbull area have concluded. The initial project began in 1994 with the cooperative efforts of NAU/ERI and the Arizona Game and Fish Department. Pre-restoration inventories were followed by operational thinning and, prescribed fire, and other treatments. Post-treatment inventories followed to compare changes in vegetation, wildlife and other inventories. Phase 2, which includes second entry prescribed burns, has been initiated and will continue indefinitely.

RELICT LEOPARD FROG INTRODUCTION AT TASSI SPRINGS

In lieu of providing protection to the Relict Leopard Frog by listing it under the Endangered Species Act, the species is being managed under a Conservation Agreement among Federal and State agencies. The Conservation Agreement and a Plan were formulated to stabilize the populations of the species and evaluate re-introduction opportunities. The species was first described in 1875 from specimens collected near the Virgin River in Washington County, Utah. Subsequent records and research has shown that the Relict Leopard Frog has a restricted range along portions of the Virgin, Muddy and Colorado Rivers, particularly in small springs feeding into these rivers. Tassi Spring was selected as a site due to its protected status on the Monument and high condition of the habitat around the spring, which has been protected from grazing.

- In August 2006, 175 individual sub-adult Relict Leopard Frogs were released at Tassi Spring. The Conservation Agreement and Plan include an active monitoring program to track population status and trends. Monitoring in 2008 detected natural reproduction of Relict Leopard Frogs.Total population and other data are being synthesized; report pending.

- Pakoon Springs has been selected as another site for introduction of the Relict Leopard Frog, if rehabilitation efforts are successful in removing the existing bullfrogs or compartmentalizing the bullfrog habitat.

BURRO REMOVAL PLAN

A draft burro removal plan was completed in September, 2009. The objective of this plan is to reduce the burro herd in the Tassi Herd Management Area to zero in accordance with the 2008 Resource Management Plan/General Management Plan and the 1995 Lake Mead National Recreation Area Burro Management Plan and Environmental Impact Statement (EIS).

If the plan is approved as drafted, the project will be implemented in two phases. Phase 1 is to obtain an accurate count of the burros and their locations. Phase 2 is to capture and remove the burros. To help maintain the herd level at zero, monitoring and removal will continue for five years. The objective is to approve and implement the plan in 2010.

2. Recreation Facilities, Roads, and Trails Conditions

a. Overview

- Facilities: The administrative facilities on the Monument are in good to excellent condition and receive general maintenance throughout the year. In 2006, the 30 year old 4,500-gallon water tank at the Nixon administrative site was removed and replaced with two new 20,000-gallon fiberglass storage tanks and the necessary water lines. Rehabilitation of the construction site and access road was initiated in 2008 and continued through FY09.

- Roads: Approximately 1,386 miles of dirt roads provide access to the Monument and are open to the public. Depending on the time of year, some roads may not be passable due to mud, snow, or flooding from storms. Mojave County holds right-of-ways for many roads in the Monument and road maintenance is conducted according to an approved schedule by the BLM and Mojave County.

- BLM and NPS are preparing a programmatic EA to address the potential impacts from and determine criteria for authorizing permits and/or motorized uses on recently designated routes in the Monument. Motorized uses could include commercially guided activities and special events. The EA is expected to be completed by early summer of 2010.

- Eleven new electronic traffic counters were purchased to replace outdated and inefficient one. The new traffic counters record the date and time of each passing vehicle, providing more detailed information on visitation to the Monument. Data from several counters will be used in conjunction with information from soundscape monitoring studies initiated on the Monument in 2009.

- Trails: American Recovery and Reinvestment Act funding provided $59,000 to perform maintenance on trails at Mount Trumbull, the Nampaweap rock art site, Mt. Dellenbaugh, Grand Wash Cliffs, and the Southern Paiute Wilderness. The work, awarded to the American Conservation Experience (ACE), is scheduled to start in April 2010 and be completed by June 2010.

- The Monument was awarded a $46,000 Arizona State Parks Motorized Trails grant to develop, design, construct, and install portal kiosks and trailhead signs in the Monument. This is a three year project starting in FY10 and ending in 2012.

- Signing and maintenance of trailhead and site facilities at the Nampaweap rock art site have been reviewed and are in the process of being updated. New markers were purchased and installed along the trail, and a new interpretive trailhead sign is currently being produced for installation in FY10.

- In August, a “Court of Honor” was held for Eagle Scout Peter Bown at the Mt. Trumbull Administrative site to recognize his dedicated work on the Temple Trail in 2008. Peter replaced many of the historic markers on the trail and created a wayside exhibit on the trailhead for his Eagle Scout Project.

- A Government Performance Review Act survey project about recreation experiences on the Monument was completed. A total of 152 surveys showed that 89% of the visitors were satisfied with the “overall quality of recreation experience” (facilities, services, and recreational opportunities).

b. Construction

One and a half miles of the Mt. Dellenbaugh boundary fence was built this year, bringing the total to three and a half miles of new fence. Materials have been delivered for five additional miles of fence, and two additional miles of fence line have been cleared. The new fence, once completed, will prevent trespass cattle from entering proposed wilderness on the NPS portion of the Monument and help deter illegal off- road driving.

c. Maintenance

Maintenance of the Monument’s administrative and public facilities is done as needed.

d. Signage

A sign inventory completed this year revealed that there currently are 187 signs (guide, directional, interpretive, identification, and regulatory/warning/safety) on the Monument. All signs have been inventoried using a GIS data dictionary system and entered into the District’s GIS system. The metadata points have a photo attached to the metadata file.

A new Monument portal sign (rustic stone and wood) was installed east of Mt. Trumbull at the intersection of Routes 5 and 109. Construction of another portal sign (also rustic stone and wood), to be located on the Nevada/Arizona state boundary on Route 111 at the entrance to the Monument in the Pakoon Basin, will be completed in FY10.

3. Outreach, Environmental Education, Interpretation, and Volunteers

a. Outreach

Heritage presentations detailing the prehistoric human experience on the Arizona Strip (including the Monument) were presented to the general public at the Interagency Office in St. George, Zion National Park, and Pipe Spring National Monument. Additional lectures and training were provided to the Arizona State Parks Site Stewards, the Utah State Site Stewards, and seasonal NPS Rangers.

Monument employees continued to add information to the NPS website - the Content Management System (CMS). Advances in technology offer extraordinary opportunities for using the Web to inform and educate the public about the uniqueness of Monument resources, the Monument's Service First partnership, and its importance and relevance as part of a national conservation system.

The Monument's oral history project continued in cooperation with Dixie College. Mormon settlers came into this area starting in the 1850's. Descendents of these early homesteaders still live in this region and retain a fervent commitment to family traditions. Interviews with senior family members are audio taped, transcribed, and archived for future reference and use in interpretive materials and historic documentation.

Staff also continued the historic research of Grand Gulch Mine, a remote public use site that contains the remnants of a historic copper mine. Research focus includes ownership chronology through the 1880's, description of mine operations, employment records, the mine's involvement with and influence on local residents, photos, and the mine's affect on natural resources within the vicinity.

Students from the Kaibab Paiute Environmental Program volunteered one weekend at the Pakoon Springs Rehabilitation Project. They helped BLM and Grand Canyon Wildlands Council staff transplant native riparian species as part of the ongoing rehabilitation of this complex of springs. BLM staff led tribal elders and youth on a visit to several cultural sites associated with this important Mojave Desert water source.

Monument cave specialist Kyle Voyles shared with the local newspaper general information about some of the amazing cave resources that lay below the rugged topography of the Arizona Strip. He also appeared on television stations out of Salt Lake City and St. George to talk about his many caving experiences on the Monument.

b. Visitor Centers

The Interagency Information center at the Arizona Strip District Office is the primary contact station for the Monument. Visitor services include exhibits, publications, maps, and an interpretive association sales area. The center is staffed by NPS, BLM, and USFS employees as well as volunteers who answer myriad visitor questions, including road conditions on the Monument. Except for federal holidays, the facility is open 7:45 A.M. to 5:00 P.M. Monday thru Friday and 10:00 A.M. to 3 P.M. on Saturday. This year 21 volunteers donated 3,510 hours to the Information Center.

"Brown Bag Programs" are presented at the Information Center each Friday from September thru March. This year 28 programs were given on a variety of local history and natural resource topics. Total attendance was 1,150.

A new informational kiosk, designed and constructed in the Interagency Information Center, contains information about the Monument. One panel contains safety and travel

planning information, and the other panels impart recreation information specific to each agency. Project partners include the AZ Strip BLM, UT BLM, National Park Service, Dixie National Forest, and Snow Canyon State Park.

Following recent changes to the National Landscape Conservation System locally, the large wall map in the Interagency Information Center is currently being updated.

c. Environmental Education

Primary messages delivered about the Monument include:

- Safety
- Cultural resource education, stewardship, and appreciation
- Environmental stewardship
- The Monument as an outdoor research laboratory
- Tread Lightly/Leave No Trace
- Ecological conservation and management
- Forest conservation and management
- Cave conservation and management

Monument Wildlife Biologist Tom Denniston gave a presentation at the 6th Annual Saint George Winter Bird Festival on the effects of wind turbines on birds and bats.

In FY08, the Monument hosted a Jr. Ranger Ambassador who helped develop activities for a Junior Ranger booklet. This year the Monument received $10,000 of Junior Ranger Ambassador funds to finalize and print the booklet, and to purchase badges. We hired an artist to illustrate and format the booklet, and purchased 5,000 badges with the Monument's logo. Remaining funds were used to print a beautiful coil bound and full color publication on heavy paper. Distribution of the booklet began in September 2009.

Collaborating with Southern Utah University (SUU), Monument staff hosted the second experiential learning camp for 12 honor students. A six-day camping trip into the Monument included multi-resource exposure and participation in the Nampaweap Petroglyphs Survey Project. Monument resource specialists provided information and assistance to the students regarding the specific resource study area.

The second three-day, two-night field camp at Mt. Trumbull "connecting Paiute Indian Youth to traditional homelands" was scheduled for September 2009. The camp, led by Tribal elders with support from Monument personnel, offers an opportunity for pre-teen youth to learn about the traditional importance of the resources as well as current management practices. This year 25 students, five elders, three chairpersons, and support staff planned to attend. Unfortunately, the camp was postponed due to an outbreak of seasonal flu virus, including H1N1, in the Kaibab Paiute community. The camp was rescheduled for May 2010.

The Monument, USFS, Red Cliffs Tortoise Reserve, City of St. George, Arizona Strip, ZION NP, and Pipe Springs NM partnered to initiate the first interagency Jr. Ranger Day. Approximately 150 fifth grade students participated in a variety of activities presented by the different agencies. The program was held at Tonaquint Park in St. George.

d. Interpretation

Six wayside exhibit packages were submitted to the Harpers Ferry Center in FY08. Editing and design work was completed this year and the exhibits are now in production.

Planning began this year for the Monument and NLCS 10th anniversary in 2010.

e. Volunteers

Monument cultural resource staff worked closely with volunteers and regional coordinators from the Arizona Site Steward Program to locate, record, and monitor cultural resource sites. The stewards and coordinators contributed 670 hours. Don Christensen's volunteer rock art group contributed an additional 160 hours recording 22 new rock art sites. The total number and value of this volunteer cultural work was $16,193.30.

The 2009 National Public Lands Day on the Arizona Strip was held on the Monument at Poverty Mountain. Ten volunteers contributed 100 hours valued at $1,950.00. This year's effort resulted in the cleanup of six heavily impacted but dispersed campsites. Volunteers dismantled 25 camp fire rings and removed more than 1,500 pounds of trash.

Staff from the Monument, Arizona Strip District Office, Arizona Game and Fish Department, Washington County Waste, and Don't Waste Dixie worked together to clean up several Arizona State land parcels within the Arizona Strip. Twenty five volunteers worked with donated tools, trucks, trailers, and heavy equipment to remove some 90,000 pounds of garbage.

Five lichenologists from Arizona State University collected specimens on the Monument for four days, volunteering a total of 300 hours in the field. BLM and NPS funding covered a small portion of their travel and lab time. Their identification and curation work occurred during the winter, totaling well over 800 hours.

f. Other Outreach Efforts

This year the District and the Monument hosted the following trips and meetings:

- A hike with Senators John McCain and Mark Udall in the Mt. Logan Wilderness within the Monument.
- A January 29th evening program at the Interagency Information Center to kick off the 2009 bird festival.

- A quarterly State Leadership Team (SLT) meeting held at the District Office.

- A summer field tour and business meeting with the Arizona Strip Interpretive Association board members at the Mt. Dellenbaugh Administrative Site.

- A spring coordination meeting with NAU/ERI and Arizona Game and Fish at Mt. Trumbull regarding the ongoing Mt. Trumbull ecological restoration project.

- The annual meeting of national park managers from the northern Arizona, southern Utah, and southern Nevada region at the Mt. Trumbull Administrative Site.

4. Science

Investigations of the Biological Soil Crusts and Associated Fungi at Grand Canyon-Parashant National Monument, NPS and BLM.
Arizona State University. Dr. Tom Nash, Scott Bates

BLM and NPS supplied joint funding for Ft. Pearce ACEC on the Arizona Strip; the NPS portion is at Gyp Hills on the Monument. Most of the field work was conducted in 2006. Additional collections, curation, identification of specimens, molecular study lab work, and statistical analysis occurred in 2007 and 2008.

Dr. Scott Bates completed a PhD dissertation on this research: *Diversity and structure of fungal communities in biological soil crusts from the Southwestern United States*, PhD Thesis, Arizona State University, 2009. The dissertation included biological soil crust lichen and fungi work from the Gyp Hills area.

A paper based on the Gyp Hills/Ft. Pearce work was submitted for publication in the Journal of Arid Environments. Another paper based on the PhD research is in draft and will be submitted to Mycologia in January 2010. A third manuscript (*Additions to the lichens of Grand Canyon-Parashant National Monument).* also in preparation, will include several new records [e.g., *Acarospora nodulosa* (Dufour) Hue, *Aspicilia hispida* Mereschk, *Placopyrenium insuetum* and *Heppia lutosa*, and *Gypsoplaca macrophylla* (Zahlbr) Timdal] that were found in 2008.

Investigations of the Lichens and their uses in biomonitoring at Grand Canyon-Parashant National Monument.
Arizona State University. Dr. Tom Nash, Ken Sweat

This study assessed heavy metal deposition to measure sources and amounts of air pollution during the last 50 years. Data was collected in the Monument in 2005 and 2006, laboratory and data analysis occurred in 2007-2009, and the PhD dissertation will be completed in May 2010. The transect results will be included in the PhD. dissertation.

A poster of the preliminary results was presented at the International Association of Lichenologists meeting in July, 2008.

Bryophyte Diversity and Distribution of the Grand-Canyon Parashant National Monument.
University of Nevada, Las Vegas. Dr. Lloyd Stark, John Brinda

The taxonomic work funded by this project yielded new species as well as range extensions for other well-known species. The researchers are accumulating a growing amount of information on problem species. They are compiling this information along with descriptive photographs for a comprehensive field guide of the bryophytes occurring on the Monument. GIS models are also being developed to describe bryophyte communities and the habitats they occupy. Utilizing GIS enables the researchers to analyze landscape features and highlight areas likely to be conducive to the presence of bryophytes. This is a potentially powerful tool for predicting the presence of different bryophyte communities and hotspots of bryological diversity.

Mojave Desert Tortoise Habitat Rehabilitation USGS: DeFalco, Esque,

Rehabilitation was initiated in 2006 and is ongoing. Because very little is known about how to rehabilitate burned Mojave Desert vegetation associations, the BLM, in cooperation with the USGS and FWS, has initiated a Mojave tortoise habitat rehabilitation research project at locations on eight separate fires in the Pakoon Basin. Each fire includes a set of four treatments:

1. Aerially seed with native spp. at 10 lbs of seed per acre.
2. Aerially seed and then incorporate the seed.
3. No seeding, fenced only.
4. No seeding, no fencing.

Each of the four treatments at each of the eight fires has been instrumented with precipitation gauges and soil thermo-couples. All treated areas except #4, have been fenced to exclude grazing.

Data collection began in spring 2007. The potential information to be gained to improve management will not be known until data has been collected for a minimum of three years. Data will be analyzed and the effectiveness of each treatment and differences between the treatments determined.

In 2009 an additional treatment with and without herbicides was added at each of the eight fires.

Brome Fungus Research RMRS/BYU: Meyer, S. & Allen, P.

Brome Fungus Research was initiated in 2007 and is ongoing. Competition from annual, exotic brome grasses is a major obstacle to post-fire seeding success in arid ecosystems. Currently available control methods do not eliminate annual brome

carryover in the seed bank. This research project, funded by the Joint Fire Science Program, will:

- Determine the effectiveness of a native fungal brome seed pathogen (*Pyrenophora semeniperda)* as a bio-control organism.
- Evaluate the risk to non-target organisms, including native and/or seeded species.
- Develop strategies for minimizing identified risks to native and seeded species.

Starting in August 2007, data samples have been collected quarterly for two years. The impacts to existing management practices will not be known until the data has been analyzed and the effects of the treatments determined.

Brome Control Trials — Hanford Reach, Julie Beckstead, ARS
Whiterocks, Susan Meyer, RMRS
Pakoon, Phil Allen, BYU

Trials were initiated in 2008 and continued in 2009. Three desert study sites are being used to test the effectiveness of various chemical and possible biological control methods. The sites are: Hanford Reach WA, Whiterocks UT, and Pakoon GCPNM AZ.

In a split plot design, two burn treatments (burned and unburned), two herbicide treatments (Plateau® in fall, Roundup® in spring after all emergence), one bacteria biological control treatment (D7 rhizobacterium in fall at installation), and four fungal biological control treatments (Isolate One high, Isolate One low , Isolate Two high, Isolate Two low) were installed.

5. Partnerships and Collaborative Relationships

Monument staff are partnering in the Mojave Desert Initiative (MDI) with other federal, state, and local agencies, as well as non-government organizations throughout the northeast Mojave region. The MDI has targeted protection and restoration of unburned Mojave Desert habitat as a top priority throughout the region. The MDI also is being proposed as a new Healthy Lands Initiative project area in FY10. Two ARRA funded projects for Healthy Lands were submitted in FY09 and expect to be implemented in FY10 upon completion of NEPA. The projects will: 1) research and develop suitable plant materials for Mojave Desert protection and restoration, and 2) the upgrade the Mojave fire suppression command center in the Pakoon Basin on the Monument.

The nine-member Rangeland Resources Team continued to provide guidance, advice, and support to our Interdisciplinary Assessment Teams conducting Standards and Guides Assessments.

The Arizona Strip, UT BLM, and Monument Managers participated in the second annual retreat with the Dixie Arizona Strip Interpretive Association. Approximately 30 people traveled to Mt. Dellenbaugh for a business meeting and a tour of local historic sites on the Monument.

BLM staff continued their participation in the Forest Restoration Partnership Group (FRPG) meetings. The main purpose of the FRPG is to jointly identify priority restoration needs, build capacity to accomplish needed restoration projects, and expand the use of stewardship contracting and other tools that encourage local employment. The FRPG focuses on BLM stewardship potential biomass offerings and possibilities in southern Utah and northern Arizona.

BLM and Monument Managers were invited to attend the Paiute Indian Tribal Council meeting in Cedar City in June. Managers had the opportunity to brief newly elected tribal council members on current land management issues of interest.

This year the Sierra Club Outings group helped complete some archeological survey work at Poverty Mountain. A total of 17 people; including BLM staff, camped for seven days at the Poverty Administration Site.

The Arizona Game and Fish Department and NAU/ERI continue to cooperate with BLM on the Mt. Trumbull Ecosystem Restoration Project. The BLM expects to continue this collaborative effort through 2010 and beyond.

For Mojave Desert Tortoise Habitat Restoration partnerships, s*ee page 16.*

For Brome Fungus Research partnerships, s*ee pages 16-17.*

6. Business Practices

a. Planning.

After five years of challenging work integrating BLM and NPS planning requirements and policies, the Grand Canyon-Parashant National Monument Resource Management Plan/General Management Plan was completed and approved in February 2008. The Approved Plan includes two Records of Decision, one for BLM and one for NPS. Route designations are described and mapped as part of the travel management decisions included in the Plan. Monument staff are currently working to implement the decisions.

b. Budget.

The Monument had a 2009 budget of approximately 2.5 million dollars. About 70% of these funds were for salaries. Other funding from the Arizona Strip District and Lake

Mead National Recreation Area offices was used for projects, fire suppression, fuels reduction, and administrative support.

7. Manager's Corner

As an innovative and jointly managed Service First unit of the National Landscape Conservation System, the Monument faces numerous opportunities and challenges that make it one of the most special and uniquely managed conservation areas in the country. Although the area is managed by agencies with different mandates and missions, the 2000 Monument Proclamation provides goals that enable staff to come together with passion to walk a common management path. That path is often difficult, especially due to agency differences in budget administration, IT systems, policy, and directives. Solutions continue to be found that will serve us well in the long-run. However, in finding them we often deal, albeit temporarily, with a higher level of inefficiency and duplicative effort than is otherwise needed. Still, the results have been good for both agencies and the public, and we take pride that we continue to blend the two agency cultures while celebrating our differences.

The Center for Biological Diversity filed suit against the BLM on January 27, 2009 to overturn the recently completed RMPs for the Monument. A coalition of Conservation groups including Earthjustice, Wilderness Society, Arizona Wilderness Coalition, Sierra Club, National Trust for Historic Preservation, and Grand Canyon Wildlands Council filed a similar suit on January 26.

The Monument forester position became vacant in fall of 2007. This year, after a very focused and intense effort, we again were unable to fill the position. Despite the disappointment, we were again able to meet most of our established workload targets thanks to the efforts of dedicated volunteer Bob Davis and our natural resource specialist Matt Pfeifler. The effect of this continued loss has been significant, not only on staff but for partners like NAU/ERI who rely on our leadership for the on-going forest restoration project on Mt. Trumbull. We will continue efforts to fill the position 2010.

Monument Superintendent Jeff Bradybaugh began an extended detail assignment as acting Superintendent for Sequoia & Kings Canyon National Parks in late September. Rosie Pepito, cultural resources manager at Lake Mead National Recreation Area, was selected to fill in as the acting Superintendent for the Monument.

State Director Elaine Zielinski attended the District's all employee meeting on December 2008 just before she retired. She expressed to staff her kudos for the Monument's continued support of the Mt. Trumbull Ecosystem Restoration Project with NAU/ERI and Arizona Game and Fish, joint BLM/NPS management of the Monument, the Mojave Desert Initiative, and the ongoing restoration work at Pakoon Springs. Jim Kenna, Arizona's new State Director, attended the all employee meeting in May.